

**Amendments to the Claims**

Please cancel Claims 2, 9, and 10. Please amend Claims 1, 3, 4, 7, 8, 11-15, and 19. Please add new Claims 20-44. The Claim Listing below will replace all prior versions of the claims in the application:

**Claim Listing**

1. (Currently Amended) A carbon-carbon composite foam, having a structure of interconnecting pores that allow fluid to flow through the carbon-carbon composite foam, the carbon-carbon composite foam comprising:
  - a) an open lattice of carbon ligaments forming a network of three-dimensionally interconnected cells; and
  - b) a pyrolytic carbon coating formed on the open lattice of carbon ligaments, wherein the carbon-carbon composite foam has a solid density of greater than 30%.
2. (Canceled)
3. (Currently Amended) The carbon-carbon composite foam of Claim ~~[[2]]~~ 1, wherein the carbon-carbon composite foam has an ~~[[essentially-isotropic]]~~ essentially isotropic structure.
4. (Currently Amended) The carbon-carbon composite foam of Claim 1, wherein the open lattice of carbon ligaments ~~consists essentially~~ comprises one of amorphous carbon or crystalline carbon.
5. (Original) The carbon-carbon composite foam of Claim 1, wherein the carbon-carbon composite foam has a solid density of at least about 40%.
6. (Original) The carbon-carbon composite foam of Claim 1, wherein the carbon-carbon composite foam has a solid density of at least about 50%.

7. (Currently Amended) The carbon-carbon composite foam of Claim 1, wherein the foam ~~includes~~ is a pyrolysis product of a thermosetting polymer selected from the group consisting of polyurethanes, phenolics, and polyimides.
8. (Currently Amended) The carbon-carbon composite foam of Claim 1, wherein the pyrolytic carbon coating is included between a reticulated foam skeleton and a by-product deposited by the thermal decomposition of a liquid precursor.
9. (Canceled)
10. (Canceled)
11. (Currently Amended) The carbon-carbon composite foam of Claim 1, comprising a ceramic coating comprising at least ~~wherein the product of a pyrolyzed liquid precursor is~~ any one of carbon, silicon carbide[[,]] and silicon nitride.
12. (Currently Amended) The carbon-carbon composite foam of Claim 1, wherein ~~a liquid precursor for forming the product~~ the pyrolytic carbon coating is a dielectric.
13. (Currently Amended) The carbon-carbon composite foam of Claim [[14]] 12, wherein the pyrolytic carbon coating has a dielectric constant of ~~the liquid precursor~~ is at least 0.5.
14. (Currently Amended) The carbon-carbon composite foam of Claim [[1]] 11, wherein the ceramic coating is deposited by the thermal decomposition of a liquid precursor for forming the product is selected from [[a]] the group consisting essentially of cyclohexane, n-hexane, benzene, methyltrichlorosilane, dimethyldichlorosilane, methyldichlorosilane, and tris-n-methyl amino silane.

15. (Currently Amended) The carbon-carbon composite of Claim 1, further including ~~wherein~~ a chemical vapor deposition coating ~~[[is]]~~ deposited on the pyrolytic carbon coating.
16. (Original) The carbon-carbon foam of Claim 1, wherein said foam includes pores being in the range of between about 500 and about 1,000 microns in diameter.
17. (Original) The carbon-carbon foam of Claim 1, wherein said foam includes micrographic porosity in the range of between about 60 and about 100 pores/inch.
18. (Original) The carbon-carbon foam of Claim 1, wherein said foam includes a bulk density of about  $0.04 \text{ g/cm}^3$ .
19. (Currently Amended) The carbon-carbon foam of Claim 1, wherein said foam includes a surface area density of about  $1.6 \text{ m}^2/\text{g}$ .
20. (New) The carbon-carbon composite foam of Claim 1, wherein the carbon-carbon composite foam has a solid density of at least about 67%.
21. (New) The carbon-carbon composite foam of Claim 1, wherein the carbon-carbon composite foam has a solid density of at least about 76%.
22. (New) The carbon-carbon composite foam of Claim 1, wherein the carbon-carbon composite foam has a solid density of at least about 82%.

23. (New) A carbon-carbon composite foam, comprising:
  - a) an open lattice of carbon ligaments forming a network of three-dimensionally interconnected cells; and
  - b) a pyrolytic carbon coating on the open lattice of carbon ligaments, wherein an interior portion of the carbon-carbon composite foam has a solid density that is greater than the solid density of a peripheral portion of the composite foam.
24. (New) The carbon-carbon composite foam of Claim 23, wherein the carbon-carbon composite foam defines a structure of interconnecting pores that allow hydraulic fluid to flow through the carbon-carbon composite foam.
25. (New) The carbon-carbon composite foam of Claim 23, wherein the open lattice of carbon ligaments comprises one of amorphous carbon or crystalline carbon.
26. (New) The carbon-carbon composite foam of Claim 23, wherein the carbon-carbon composite foam has a solid density of at least about 40%.
27. (New) The carbon-carbon composite foam of Claim 23, wherein the carbon-carbon composite foam has a solid density of at least about 50%.
28. (New) The carbon-carbon composite foam of Claim 23, wherein the foam is a pyrolytic product of a thermosetting polymer selected from the group consisting of polyurethanes, phenolics, and polyimides.
29. (New) The carbon-carbon composite foam of Claim 23, wherein the pyrolytic carbon coating is deposited by the thermal decomposition of a liquid precursor.
30. (New) The carbon-carbon composite foam of Claim 23, comprising a ceramic coating comprising at least one of silicon carbide and silicon nitride.

31. (New) The carbon-carbon composite foam of Claim 23, wherein the pyrolytic carbon coating is a dielectric.
32. (New) The carbon-carbon composite foam of Claim 31, wherein the pyrolytic carbon coating has a dielectric constant of at least 0.5.
33. (New) The carbon-carbon composite foam of Claim 30, wherein the ceramic coating is deposited by the thermal decomposition of a liquid precursor selected from the group consisting essentially of methyltrichlorosilane, dimethyldichlorosilane, methyldichlorosilane, and tris-n-methyl amino silane.
34. (New) The carbon-carbon composite of Claim 23, further including a chemical vapor deposition coating deposited on the pyrolytic carbon coating.
35. (New) The carbon-carbon foam of Claim 23, wherein said foam includes pores being in the range of between about 500 and about 1,000 microns in diameter.
36. (New) The carbon-carbon foam of Claim 23, wherein said foam includes micrographic porosity in the range of between about 60 and about 100 pores/inch.
37. (New) The carbon-carbon foam of Claim 23, wherein said foam includes a bulk density of about  $0.04 \text{ g/cm}^3$ .
38. (New) The carbon-carbon foam of Claim 23, wherein said foam includes a surface area density of about  $1.6 \text{ m}^2/\text{g}$ .
39. (New) The carbon-carbon composite foam of Claim 23, wherein the carbon-carbon composite foam has a solid density of at least about 67%.

40. (New) The carbon-carbon composite foam of Claim 23, wherein the carbon-carbon composite foam has a solid density of at least about 76%.
41. (New) The carbon-carbon composite foam of Claim 23, wherein the carbon-carbon composite foam has a solid density of at least about 82%.
42. (New) The carbon-carbon composite foam of Claim 1, wherein the pyrolytic carbon coating is deposited by the thermal decomposition of a liquid precursor selected from a group consisting of cyclohexane, n-hexane, and benzene.
43. (New) The carbon-carbon composite foam of Claim 23, wherein the pyrolytic carbon coating is deposited by the thermal decomposition of a liquid precursor selected from a group consisting of cyclohexane, n-hexane, and benzene.
44. (New) A composite foam having a structure of interconnecting pores that allow fluid to flow through the composite foam, the composite foam comprising:
  - a) an open lattice of carbon ligaments forming a network of three-dimensionally interconnected cells; and
  - b) a pyrolytic coating formed on the open lattice of carbon ligaments, wherein the carbon-carbon composite foam has a solid density of greater than 30%, and wherein the pyrolytic coating comprises at least one of silicon carbide and silicon nitride.